

BE TICK SMART

REPEL • INSPECT • REMOVE

What you should know about
tick bites & Lyme disease





What is Lyme disease?

Lyme disease is an infection spread by the bite of an infected tick. It is caused by a bacteria called *Borrelia burgdorferi*. Ticks can get the bacteria by biting small animals that are infected. In the eastern U.S., Lyme disease is transmitted by black-legged ticks (*Ixodes scapularis*), also called deer ticks.

Lyme disease may affect the skin, heart, nerves, or joints.

Patients treated with antibiotics usually recover completely.

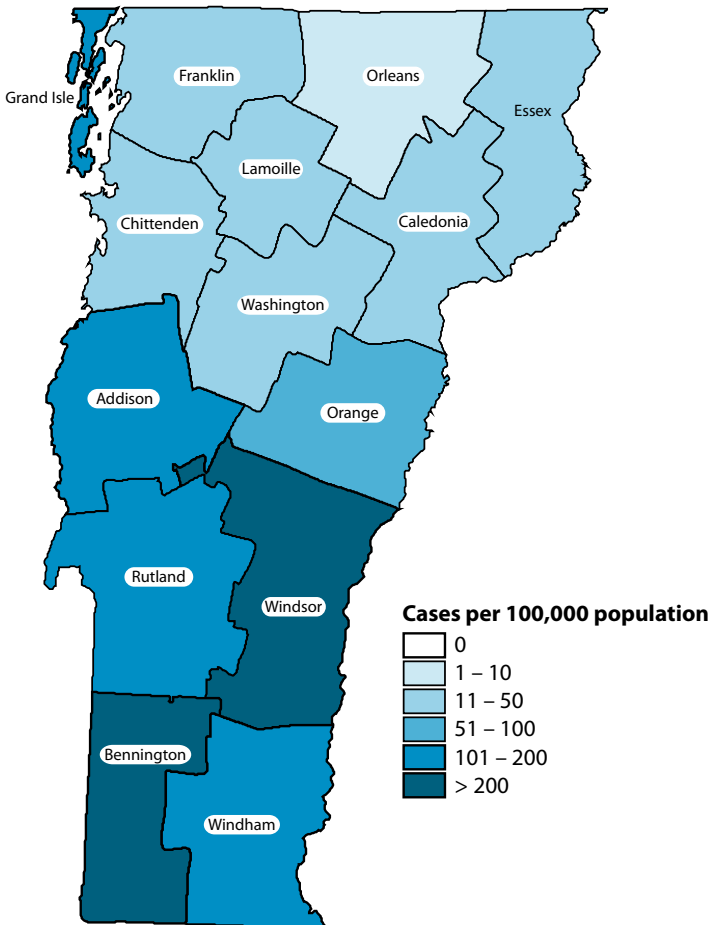




Do we have Lyme disease in Vermont?

Yes. For many years, only a few cases of Lyme disease were reported to the Vermont Department of Health annually. In 2005, that number started to increase. Each year since 2008, the health department has received between about 250 and 500 reports of people with Lyme disease who were likely exposed in Vermont. Most of the cases were in people who live in the southern half of our state, but cases have been reported from all areas of Vermont.

Lyme Disease In Vermont 2014: Incidence Rate of Confirmed & Probable Cases

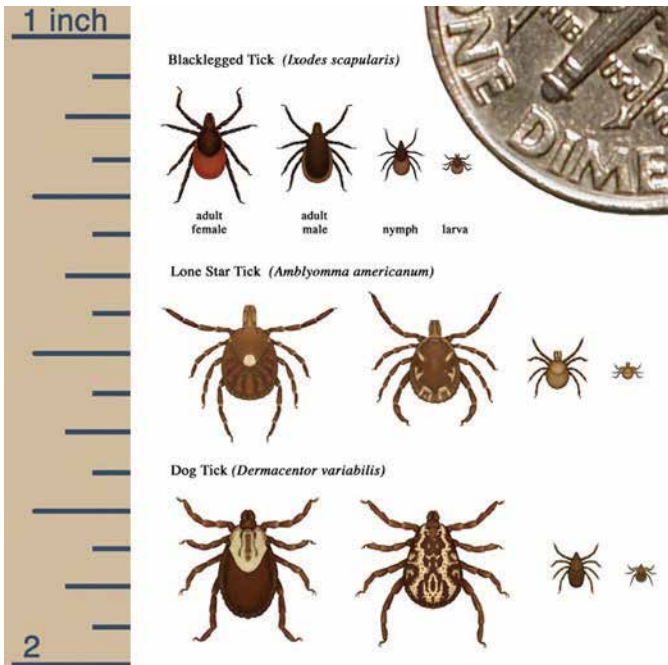




How is Lyme disease spread?

The bacteria that cause Lyme disease, *Borrelia burgdorferi*, enter the body when an infected tick attaches to the skin to take a blood meal. In most cases, an infected tick must be attached for at least 36 hours in order to transmit Lyme disease. Prompt removal of ticks can prevent infection.

Not all types of ticks carry Lyme disease. In the eastern United States, the black-legged tick, commonly known as the deer tick, is responsible for transmitting the disease. Deer ticks are common in Vermont, but not all of them are infected with the bacteria. Deer ticks acquire the bacteria when they feed on infected small animals, especially mice.



The black-legged tick, or deer tick, is shown at the top. The Lone Star tick is rarely found in Vermont. The dog tick, which is common in Vermont, can carry Rocky Mountain Spotted Fever. However, this disease is rare in New England.



Lyme disease transmission can occur as long as ticks are active, which is typically from early spring through late fall. However, most infections in people happen in the spring and summer when the small nymphs are most active. Adult ticks can also transmit Lyme disease, but they are larger and easier to find and remove promptly. The tiny larvae cannot transmit Lyme disease.

Can deer ticks spread other diseases?

Deer ticks can also transmit anaplasmosis, babesiosis and Powassan virus. In Vermont, reports of anaplasmosis have been increasing since 2010, but it is less common than Lyme disease. Anaplasmosis is a bacterial infection treated by the same antibiotics used to treat Lyme disease. Babesiosis is caused by a parasite, and only a few cases are reported each year in Vermont. Powassan virus was only recently shown to be carried by deer ticks. It's not known how common it is in Vermont, but illness appears to be uncommon.

How can I prevent Lyme disease?

The best way to prevent Lyme disease is to prevent tick bites.

While outdoors:

- ▶ Avoid high grass and bushy areas as much as possible.
- ▶ Wear long pants and long-sleeved shirts to minimize skin exposure to ticks.
- ▶ Tuck your pants into your socks to form a barrier to keep ticks out.
- ▶ Wear light-colored clothing so you can easily see ticks on your clothing.
- ▶ Check for ticks, looking particularly for what may look like nothing more than a new freckle or speck of dirt, and remove ticks promptly.
- ▶ Use effective tick repellents on your skin or on your clothing.



When you come indoors:

- ▶ Check your body for ticks, and check your children. Pay special attention to the head, armpits, and groin area. Remove ticks promptly.
- ▶ Showering within a few hours of being outside may be helpful.
- ▶ Examine your gear and clothing. Put your clothes in the dryer on high heat for an hour to kill any remaining ticks.

Which repellents should I use?

Use repellents that are registered by the Environmental Protection Agency (EPA), those products have been evaluated for safety and effectiveness. Look for the EPA number on the label. Read the label carefully for information about effectiveness and proper use.

DEET (N,N-diethyl-meta-toluamide) is effective against ticks and has been used safely for many years. A higher percentage of DEET in a repellent does not mean that the protection is better—just that it will last longer.

- ▶ Do Not use DEET on infants younger than 2 months old.
- ▶ Do Not use DEET in concentrations greater than 30%.
- ▶ DEET is safe for children in concentrations up to 30%.

Other repellents that may be effective against ticks:

Picaridin (KBR 3023)

Oil of lemon eucalyptus or its synthesized version,
p-Mentane-3,8-diol

IR3535 (3-[N-Butyl-N-acetyl]-aminopropionic acid, ethyl ester)

For use on clothing:

Permethrin is an insecticide and insect repellent that can be used on clothing, shoes, bed nets, and camping gear. Permethrin should never be applied to skin. Permethrin-treated clothing repels and kills ticks, mosquitoes, and other insects and retains this effect after laundering.

For more information, go to EPA's website:



<http://cfpub.epa.gov/oppref/insect/index.cfm>

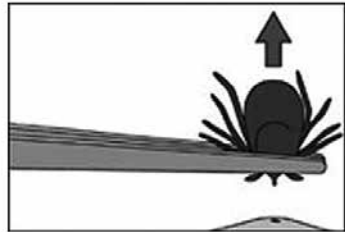
What should I do if I get a tick bite?

Remove the Tick

Try to remove the tick as soon as you discover it because prompt removal can prevent Lyme disease. It can take 36 hours for a tick to transmit the bacteria that cause Lyme disease to you.

To safely remove ticks:

- ▶ Use fine-tipped tweezers and firmly grasp the tick close to the skin. Avoid touching the tick with your bare hands.
- ▶ With a steady motion, pull straight up until all parts of the tick are removed. Do not twist or jerk the tick. Do not be alarmed if the tick's mouthparts stay in the skin. Once the mouthparts are removed from the rest of the tick, it can no longer transmit the Lyme disease bacteria.



DO NOT use petroleum jelly, a hot match, nail polish, or other products to remove a tick. These methods are not effective.

Thoroughly wash your hands and the bite area.

After removing the tick, wash your hands with soap and water or use an alcohol-based hand sanitizer if soap and water are not available. Clean the tick bite with soap and water, or use an antiseptic



such as iodine scrub or rubbing alcohol.

Watch for symptoms of Lyme disease.

If a tick is attached to your skin for less than 36 hours, your chance of getting Lyme disease is small. But, just in case, monitor your health closely and be on the alert for symptoms of Lyme disease. Symptoms can begin three days after a tick bite, or as long as 30 days after, but usually appear within one to two weeks. If you develop symptoms, contact your health care provider.

What are the symptoms of Lyme disease?

The symptoms of Lyme disease are quite variable because different parts of the body may be affected. The skin, joints, nerves or heart may be involved.

Early symptoms of Lyme disease typically occur from three to 30 days after an infection. Symptoms include one or more of the following:

- fatigue
- chills and fever
- muscle and joint pain
- headache
- swollen lymph nodes
- Erythema migrans (EM) rash: EM is a characteristic skin rash associated with Lyme disease. It occurs in up to 80 percent of people. EM usually appears as an expanding rash at or near the site of the tick bite. The center of the rash may clear as it spreads, giving it the appearance of a bull's-eye. The



EM rash



Atypical EM rash



rash may be warm, but it is usually not painful or itchy.

An EM rash must be distinguished from a rash caused by an allergic reaction to a tick or insect bite. A skin rash due to an allergic reaction usually appears within a day after the bite, does not grow, and disappears within a day or two.

Infections that are not recognized and treated in the early phase may spread to other parts of the body. This is a condition called disseminated Lyme disease. Symptoms of disseminated disease can occur days to months after the initial infection.

Some of the symptoms associated with disseminated disease include:

- numbness and pain in the arms or legs
- paralysis of facial muscles, usually on one side of the face (also known as Bell's palsy)
- fever, stiff neck, and severe headaches if meningitis occurs
- abnormal heart beat (rare)
- joint pain and swelling

Up to 60 percent of people who do not receive treatment develop intermittent bouts of arthritis several months after infection. The arthritis is characterized by severe joint pain and swelling, usually of large joints, most commonly the knee.

In addition, a small percentage of untreated people develop chronic nervous system problems months to years after infection. Such problems include shooting pains, numbness or tingling in the hands and feet, and problems with concentration and short-term memory.

What is the treatment for Lyme disease?

Appropriate treatment of Lyme disease with antibiotics almost always results in a full cure. While early treatment is best, most



people diagnosed later in the course of illness can also be successfully treated.

Can animals get Lyme disease?

Lyme disease is not limited to humans. Veterinarians have reported Lyme disease in dogs, horses and cattle. Cats can become infected but do not become ill. Just as with humans, it is important for animals to avoid tick bites, and receive prompt treatment for Lyme disease.

Tick bite prevention:

- ▶ When walking or exercising your dog, try to keep it away from grassy or wooded areas and leafy debris.
- ▶ Check your pet regularly for ticks, especially after any trips through grassy or wooded areas. Comb through your pet's hair thoroughly.
- ▶ If you find a tick remove it promptly.
- ▶ Consult your veterinarian about treating your dog or cat with tick-killing pesticides (acaricides) or using tick collars.
- ▶ There is a Lyme disease vaccine available for dogs. However, there are varying opinions on its effectiveness. Consult your veterinarian about the vaccine.
- ▶ If you find several ticks on your dog, you may wish to discuss an insecticidal bath with your veterinarian or groomer.

Symptoms of Lyme disease in pets:

Most infected animals do not become ill. However, for those that do develop Lyme disease, the symptoms are often similar to those in humans, except that animals do not develop an EM rash.

The most common symptoms in dogs, cattle and horses are fever and arthritis (displayed as joint pain, shifting from foot to foot, or



lameness). Animals may also be lethargic and have a poor appetite. In some dogs, Lyme disease may cause kidney damage.

Treatment of Lyme disease in pets

As with humans, animals are treated for Lyme disease with antibiotics. Consult your veterinarian about proper treatment of your pet.

http://healthvermont.gov/prevent/zoonotic/tickborne/Tickborne_diseases.aspx

or call:

800-640-4374 or 802-863-7240

We would like your feedback.

Is the information in this booklet helpful? Did it answer your questions about Lyme disease? Let us know what you think at:

http://healthvermont.gov/prevent/lyme/lyme_disease.aspx



Scan this square with your smartphone to go directly to the webpage.

Should I get the tick tested?

The Vermont Department of Health does not test ticks for Lyme disease and does not recommend that tick testing be done. There are several reasons for this:

- ▶ You may not have been infected. Even if a tick tests positive, it may not have been attached long enough to transmit the infection to you.
- ▶ It might delay treatment. Tick test results take several days and may not be available in time to make a timely treatment decision to prevent Lyme disease.
- ▶ You may have other tick bites that you don't know about. Even if the tick you found tests negative, you could still have been bitten by an infected tick, not know it, and develop symptoms of Lyme disease.
- ▶ Tests performed on ticks are not always perfect. All laboratory tests have the possibility of false positive or false negative results.

Spot a tick?

Use our interactive **Tick Tracker** to share information about where and what kind of ticks you have found.

<http://healthvermont.gov/ticktracker>



Black-legged tick—

Ixodes scapularis, Adult

Photo credit: Scott Bauer, USDA Agricultural Research Service, Bugwood.org